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## NOTICE OF ALLOWANCE AND FEE(S) DUE

65565 7590 09/11/2008

SUGHRUE-265550  
2100 PENNSYLVANIA AVE. NW  
WASHINGTON, DC 20037-3213

EXAMINER

MOSS, KERI A

ART UNIT

PAPER NUMBER

1797

DATE MAILED: 09/11/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/092,591

03/08/2002

Shinji Yamamori

Q68895

1085

TITLE OF INVENTION: SENSOR FOR MEASURING CARBON DIOXIDE IN RESPIRATORY GAS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	12/11/2008

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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65565 7590 09/11/2008

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## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,591	03/08/2002	Shinji Yamamori	Q68895	1085

TITLE OF INVENTION: SENSOR FOR MEASURING CARBON DIOXIDE IN RESPIRATORY GAS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	12/11/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
MOSS, KERI A	1797	422-083000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,591	03/08/2002	Shinji Yamamori	Q68895	1085
65565	7590	09/11/2008	EXAMINER	
SUGHRUE-265550 2100 PENNSYLVANIA AVE. NW WASHINGTON, DC 20037-3213			MOSS, KERI A	
			ART UNIT	PAPER NUMBER
			1797	
DATE MAILED: 09/11/2008				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 381 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 381 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/092,591	YAMAMORI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	KERI A. MOSS	1797	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to After Final Amendment filed 7/24/08.
2. ☒ The allowed claim(s) is/are 1,4,5,9,10,13-15,17,18,20,27,29-31 and 33-38.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date ____     | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other ____.   |

/Maureen M. Wallenhorst/  
Primary Examiner, Art Unit 1797

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney David Emery on August 28, 2008.

The application has been amended as follows:

### **AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

### **LISTING OF CLAIMS:**

1. (currently amended): A sensor adapted to measure the concentration or presence/absence of carbon dioxide in respiratory gas from a living body, comprising:

- a light-emitting light element operable to emit light;
- a light-receiving element adapted to receive the light emitted from the light-receiving element;
- a support member supporting the light-emitting element and the light-receiving element such that they are opposed to each other on a single optical axis, the support member having a size adapted to contact a part between nostrils and a mouth of the living body; ~~and~~

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a respiratory flow path formed in the support member so as to cross over the optical axis and adapted to allow the respiratory gas to pass therethrough when the support member is located between the nostrils and the mouth; and

ear straps adapted to be hooked around ears of the living body for holding the supporting member below the nostrils.

2.-3 (canceled).

4. (currently amended): The sensor as claimed in ~~claim 3~~ claim 1, wherein the ear straps include at least one of a first lead wire for supplying power to the light-emitting element and a second lead wire for outputting a signal detected by the light-receiving element.

5. (previously presented): The sensor as claimed in claim 1, further comprising an engagement member provided as a part of the support member and adapted to be engaged with a tubular member for supplying oxygen to the nostrils.

6. - 8. (canceled).

9. (previously presented): The sensor as claimed in claim 1, further comprising a mouth-side guide member attached on the support member and adapted to guide respiratory gas from the mouth to the respiratory flow path.

10. (currently amended): A sensor adapted to measure a concentration or presence/absence of carbon dioxide in respiratory gas from a living body, comprising:

a light-emitting element operable to emit light;

a light-receiving element adapted to receive the light emitted from the light-emitting element;

an oxygen mask adapted to cover a part of a face of the living body to supply oxygen to the living body;

a support member supporting the light-emitting element and the light-receiving element such that they are opposed to each other on a single optical axis, the support member being disposed on an interior surface of the oxygen mask and having a size adapted to contact a part between nostrils and a mouth of the living body; and

a respiratory flow path formed in the support member so as to cross over the optical axis and so as to communicate with an interior of the oxygen mask, the respiratory flow path being adapted to allow the respiratory gas to pass therethrough when the oxygen mask covers the part of the face.

11. -12. (canceled).

13. (currently amended): A sensor adapted to measure a concentration or presence/absence of carbon dioxide in respiratory gas from a living body, comprising:

a light-emitting element operable to emit light;

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a light-receiving element adapted to receive the light emitted from the light-emitting element;

an airway case having a size adapted to contact a part between nostrils and a mouth of the living body , and having a pair of openings opposing to each other;

a respiratory flow path formed in the airway case so as to extend between the openings, and adapted to allow the respiratory gas to pass therethrough when the airway case is located between the nostrils and the mouth;

a pair of transparent thin films respectively sealing the openings; and

a pair of supporting members respectively supporting the light-emitting element and the light-receiving element such that they are opposed to each other on a single optical axis through the openings.

14. (previously presented): The sensor as claimed in claim 13, wherein the thin films are anti-fogging films.

15. (previously presented): The sensor as claimed in claim 13, wherein said supporting members are removably engaged with the light emitting element and the light-receiving element respectively.

16. (canceled).



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17. (previously presented): The sensor as claimed in claim 13, further comprising a mouth-side guide member attached on the airway case and adapted to guide respiratory gas from the mouth to the respiratory flow path.

18. (previously presented): The sensor as claimed in claim 9, wherein the mouth-side guide member is removably engaged with the support member.

19. (canceled).

20. (previously presented): The sensor as claimed in claim 17, wherein the mouth-side guide member is removably engaged with the airway case.

21. - 26. (canceled).

27. (previously presented): The sensor as claimed in claim 37, wherein the nasal-side guide member has a base portion at which the nasal prongs are integrated so as to form a Y-shaped respiratory flow path.

28. (canceled).

29. (previously presented): The sensor as claimed in claim 34, wherein the nasal-side guide member has a base portion at which the nasal prongs are integrated so as to form a Y-shaped respiratory flow path.

30. (previously presented): The sensor as claimed in claim 9, wherein the mouth-side guide member having an opening adapted to cover at least a part of the mouth while extending in a direction that is substantially parallel with at face of the living body.

31. (previously presented): The sensor as claimed in claim 17, wherein the mouth-side guide member having an opening adapted to cover at least a part of the mouth while extending in a direction that is substantially parallel with a face of the living body.

32. (canceled).

33. (previously presented): The sensor as claimed in claim 1, further comprising a nasal-side guide

member adapted to introduce the respiratory gas from the nostrils to the respiratory flow path.

34. (previously presented): The sensor as claimed in claim 33, wherein the nasal-side guide member has two nasal prongs adapted to be inserted into the nostrils when the support member is located between the nostrils and the mouth.

35. (previously presented): The sensor as claimed in claim 33, wherein the nasal-side guide member comprises a funnel-shaped member.

36. (previously presented): The sensor as claimed in claim 13, further comprising a nasal-side guide member adapted to introduce the respiratory gas from the nostrils to the respiratory flow path.

37. (previously presented): The sensor as claimed in claim 36, wherein the nasal-side guide member has two nasal prongs adapted to be inserted into the nostrils when the support member is located between the nostrils and the mouth.

38. (previously presented): The sensor as claimed in claim 36, wherein the nasal-side guide member comprises a funnel-shaped member.

39.-43. (canceled).

2. The following is an examiner's statement of reasons for allowance: The closest prior art is the airway adapter in the O'Neil et al. patent (USP 6,044,843), the gas analyzer in the Braig et al. patent (USP 5,282,473) and the airway adapter and carbon dioxide detector Isaacson et al. (USP 6,190,329) which teach the light-emitting light element, the light-receiving element, the support member and the respiratory flow path

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as claimed by applicant. O'Neil et al. does not teach or suggest ear straps adapted to be hooked around ears of the living body for holding the supporting member below the nostrils. The language "having a size adapted to contact a part between the nostrils and a mouth of the living body" and "when the support member is located between the nostrils and the mouth" distinguishes this claim from the prior art and the examiner has interpreted this language as having patentable weight. The examiner interprets this language to mean that the sensor and the support member must be located between the mouth and the nostrils of the living body.

3. Regarding claim 10, the closest prior art is the airway adapter in the O'Neil et al. patent (USP 6,044,843), the gas analyzer in the Braig et al. patent (USP 5,282,473) and the airway adapter and carbon dioxide detector Isaacson et al. (USP 6,190,329) which teach a sensor comprising the light-emitting light element, the light-receiving element, the support member and the respiratory flow path as claimed by applicant. O'Neil et al. does not teach or suggest this sensor further comprising an oxygen mask adapted to cover a part of a face of the living body to supply oxygen to the living body; a support member supporting the light-emitting element and the light-receiving element such that they are opposed to each other on a single optical axis, the support member being disposed on an interior surface of the oxygen mask and having a size adapted to contact a part between nostrils and a mouth of the living body. The language "having a size adapted to contact a part between the nostrils and a mouth of the living body" and "when the support member is located between the nostrils and the mouth" distinguishes this claim from the prior art and the examiner has interpreted this language as having

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patentable weight. The examiner interprets this language to mean that the sensor and the support member must be located between the mouth and the nostrils of the living body.

4. Regarding claim 13, the prior art does not teach or suggest the O'Neil adapter, the Braig et al. analyzer, the Isaacson et al. detector as described in paragraphs 2 and 3 further comprising an airway case having a size adapted to contact a part between nostrils and a mouth of the living body and having a pair of openings opposing to each other; a respiratory flow path formed in the airway case so as to extend between the openings and adapted to allow the respiratory gas to pass therethrough when the airway case is located between the nostrils and the mouth; a pair of transparent thin films respectively sealing the openings; and a pair of supporting members respectively supporting the light-emitting and the light-receiving element such that they are opposed to each other on a single optical axis through the openings. The language "having a size adapted to contact a part between the nostrils and a mouth of the living body" and "when the airway case is located between the nostrils and the mouth" distinguishes this claim from the prior art and the examiner has interpreted this language as having patentable weight. The examiner interprets this language to mean that the sensor and the airway case must be located between the mouth and the nostrils of the living body.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to KERI A. MOSS whose telephone number is (571)272-8267. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Keri A. Moss/  
Examiner, Art Unit 1797

/Maureen M. Wallenhorst/  
Primary Examiner, Art Unit 1797